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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,566	03/04/2005	Masahiro Oshikiri	L9289.05111	7427

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EXAMINER	
SHAH, PARAS D	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/526,566	OSHIKIRI, MASAHIRO	
	Examiner	Art Unit	
	Paras Shah	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to the Application filed on 03/04/2005. Claims 1-20 are pending and have been examined.

Preliminary Amendment

2. The preliminary amendment filed on 03/04/2005 has been considered by the examiner.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

4. The reference to the foreign priority data should be changed to the beginning of the Specification.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 03/04/2005, 06/21/2005, and 01/10/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 8 recites the limitation "encodes the positions in a time domain and frequency domain." It is unclear as to what the applicant is seeking to claim. Hence, for the purposes of compact prosecution, the above was determined to be implied since the time domain for the frame is transformed to the frequency domain. Hence, the encoding of the time domain is implied in order to do an IMDCT when decoding.

10. Claim 9 recites the limitation "plural domains in one or both of the time domain and frequency domain in one group". However, if one domain is chosen it is not plural. Hence, for the purposes of compact prosecution, the limitation was interpreted to mean two domains as states above for claim 8.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 1-4, 10-12, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jin *et al.*(JP 08-263096) in view of Nomura (JP 10-207496).

As to claims 1 and 20, Jin *et al.* teaches a coding apparatus comprising:

a down-sampling section disclose (see [0015], down-sampling from sample rate converter 221) that lowers a sampling rate of an input signal (e.g. The down-sampling lowers the sampling rate of the signal.);

a base layer coding section (see [0015], 1st encoder 241) that encodes an input signal of which sampling rate is lowered in predetermined base frame units (see [0015]) (e.g. The input into the 1st encoder is the down-sampled signal.);

a decoding section (see [0015], local decoder 251) that generates a decoded signal based on said first coding information (see [0015]) (e.g. The local decoder decodes the signal from the encoder 241.);

an up-sampling section (see [0015], up-sampling from sample rate converter 261) that raises a sampling rate of said decoded signal to the same rate as the original sampling rate (see [0015]) (e.g. The sampling frequency is up-sampled on the decoded signal. The sampling frequency of the input and the up-sampler are the same at 24kHz.)

a subtraction section (see [0016], difference circuit 28) that obtains a difference signal between the input signal when the signal is input and the decoded signal with the increased sampling rate (see [0016], difference signal 29); and

an enhancement layer coding section see [0015], 2nd encoder 242) that encodes the difference signal (see [0015] and [0016]) (e.g. The values of the decoded signal for which the sampling rate was raised and the input signal are the parameters. A difference is computed and the second coding information is obtained.);

However, Jin *et al.* does not specifically teach the enhancement layer encoding the difference signal in units of a frame shorter than that of the base frame.

Nomura does teach frame shorter than that of the base frame (see [0027]-[0029], frame dividing network 201 divides the input signal into frames and then subframe dividing network divides the frames into subframes.)

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the acoustic coding as taught by Jin *et al.* with the inclusion of enhancement frames shorter than that of the base layer. The motivation to have combined the references involves the ability to control coding delay and bit rate once the signal is inputted until coding starts (see Nomura, [0014] and [0019]). Hence, the input to the frame divider can be placed after the difference signal as taught by Jin *et al.* and then input for encoding into the enhancement layer to reduce delay.

As to claim 2, Jin *et al.* in view of Nomura teach all of the limitations as in claim 1, above.

Furthermore, Nomura teaches a frame division section that divides a signal (see [0027]-[0029], frame dividing network 201 and subframe dividing section 202)

Furthermore, Jin teaches the difference signal (see [0016]) in base frame units into enhancement frame units, wherein the enhancement layer coding section encodes the divided difference signal (see [0016]). (e.g. The input to the frame divider can be placed after the difference signal as taught by Jin *et al.* and then input for encoding into the enhancement layer to reduce delay. Further, since the base layer is encoded for a specific frame length, the frame divider will cause the difference signal to have shorter length frames.

As to claim 3, Jin *et al.* in view of Nomura teach all of the limitations as in claim 1, above.

Furthermore, Jin teaches wherein the base layer coding section encodes the input signal using a code excited linear prediction coding (see [0015], CELP).

As to claim 4, Jin *et al.* in view of Nomura teach all of the limitations as in claim 1, above.

Furthermore, Jin teaches wherein the enhancement layer coding section transforms the difference signal from a time domain to a frequency domain and

encodes the transformed difference signal (see Jin *et al.* [0021], rectangular cosine conversion is carried out using DCT 45).

Claims 10-12 are rejected as reciting similar limitations as that cited above for the encoder. It is well known in the art that the decoder is a mirror image of the encoder. Further, the cited reference mentions the use of a decoder with all steps shown in the decoder claims (see Jin et al. [0022]- [0024]).

13. Claim 5-8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jin *et al.*(JP 08-263096) in view of Nomura (JP 10-207496). as applied to claim 4 above, and further in view of Kono (JP 08-046517).

As to claim 5, Jin *et al.* in view of Nomura teach the transformation of the difference signal from the time to frequency domain (see Jin *et al.*, [0021], see DCT 45).

However, Jin *et al.* in view of Nomura do not specifically teach the use of MDCT.

Kono does teach wherein the enhancement layer coding section transforms the difference signal from a time domain to a frequency domain using a modified discrete cosine transform(see [0038] and [0041], MDCT circuit 13).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin *et al.* and Nomura with the use of encoding using orthogonal transformation with

MDCT processing as taught by Kono. The motivation to have combined the references involves the consideration of the auditory masking from the spectrum of data (see Kono, [0038]). Further, the encoding of the enhancement layer using MDCT is another method for encoding a signal as is well known in the art.

As to claim 6, Jin *et al.* in view of Nomura teach all of the limitations as in claim 4, above.

However, Jin *et al.* in view of Nomura do not specifically teach the encoding of a predetermined band.

Kono does teach wherein the enhancement layer coding section encodes only a predetermined band of the difference signal transformed to a frequency domain (see [0041]-[0043], specific bands defined, for example, 11-22kHz, 0-5.5kHz, and 5.5-11kHz.).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin et al. and Nomura with encoding of a predetermined band as taught by Kono. The motivation to have combined the references involves the consideration of the auditory masking from the spectrum of data (see Kono, [0038]).

As to claim 7, Jin *et al.* in view of Nomura teach all of the limitations as in claim 4, above.

However, Jin *et al.* in view of Nomura do not specifically teach the perceptual masking section.

Kono does teach a perceptual masking section that calculates perceptual masking expressing an amplitude value which does not affect to auditory perception, wherein the enhancement layer coding section does not regard signals in the perceptual masking as coding targets (see Kono, [0051]-[0055], The bark spectrum is used for the determination of the acoustic sense allowance noise level for each critical band. Further, convolution processing is used for the multiplier value.)

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin et al. and Nomura with perceptual masking section as taught by Kono. The motivation to have combined the references involves the consideration of the auditory masking from the spectrum of data from an allowable noise spectrum level and for performing bit allocation as a result (see Kono, [0051]- [0052]).

As to claim 8, Jin *et al.* in view of Nomura in view of Kono teach all of the limitations as in claim 7, above.

Furthermore, Kono teaches wherein the enhancement layer coding section calculates a difference between perceptual masking and a residual signal

(see Kono, [0056], [0059]-[0065], noise allowance is determined based on the noise level for that band and the actual noise that was determined from the Bark spectrum and computes an alpha value), regards a residual signal for which the difference is relatively large as a coding target and encodes the positions in a time domain and frequency domain (see [0066]) (e.g. From the spectrum an auditory masking values are determined and subtracted from the amplitude values depending on a threshold. Further, the result is implicitly used as coding information for bit allocation.) in which the residual signal exists (see [0052]-[0066]). (e.g. The use of MDCT will transform the time domain signal into frequency domain for the incoming frame. Hence, the frame information, which contains the timing, is preserved in order for it to be decoded for output.)

Claim 14 is rejected as reciting similar limitations as that cited above in claim 8 for the encoder. It is well known in the art that the decoder is a mirror image of the encoder. Further, the cited reference mentions the use of a decoder with all steps shown in the decoder claims (see Jin et al. [0022]-[0024]) and (see Kono, [0086]).

14. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jin *et al.* in view of Nomura in view of Kono as applied to claim 8 and 14 above, and further in view of Wang *et al.* (US 6,934,676).

As to claim 9, Jin *et al.* in view of Nomura in view of Kono teach all of the limitations as in claim 8 and 14, above

Furthermore, Jin *et al.* teaches wherein the enhancement layer coding section the frequency domain as one group, calculates a difference between the perceptual masking and residual signal in units of the group and encodes only the residual signal included in the group for which this difference is relatively large (see Jin et al. [0022]- [0024]) and (see Kono, [0086]).

However, Jin *et al.* in view of Nomura, in view of Kono do not specifically teach plural domains in one or both of the time domain and frequency domain.

Wang *et al.* teach the use of plural domains (see col. 6, lines 27-39, plurality of scalefactor bands).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin et al. and Nomura and Kono with the use plural domains as taught by Wang *et al.*. The motivation to have combined the references involves ability to perform further processing in order to determine reduce cross channel redundancy (see Wang, col. 6, lines 30-50).

Claim 15 is rejected as reciting similar limitations as that cited above in claim 9 for the encoder. It is well known in the art that the decoder is a mirror image of the encoder. Further, the cited reference mentions the use of a decoder with all steps shown in the decoder claims (see Jin et al. [0022]- [0024]) and (see Kono, [0086]).

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jin *et al.* in view of Nomura as applied to claim 12 above, and further in view of Chen (US 2002/0007273).

As to claim 13, Jin *et al.* in view of Nomura teach all of the limitations as in claim 12, above.

Furthermore, Jin *et al.* teaches the second decoded signals and outputs the decoded signals to the addition section, and the addition section adds the second decoded signals (see [0023]).

However, Jin *et al.* in view of Nomura do not specifically teach the overlapping addition section and the decoding using an inverse modified discrete cosine transform.

Chen does teach an overlapping addition section that overlaps frame sections obtained by coding the second decoded signals with each other at the same timing (see [0032] and [0103], overlap-add synthesis), using an inverse modified discrete cosine transform from the frequency (see [0103], overlap and add synthesis and IMDCT) domain to time domain to thereby decode the second decoded signals (see Figure 2, synthesis processor 150).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the coding apparatus taught by Jin et al. and Nomura with the use of overlap and add using IMDCT as taught by Chen. The motivation to have combined the references involves the minimization of discontinuities at frame boundaries (see Chen, [0116]).

16. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebara *et al.* (JP 200-322097) in view of Jin *et al.* and in view of Nomura.

As to claims 16, \Ebara teaches an acoustic signal transmission apparatus comprising:

an acoustic input section that converts an acoustic signal to an electrical signal (see [0045], audio input unit 102);

an A/D conversion section that converts a signal output from said acoustic input section to a digital signal (see [0045], A/D converter 103);

an RF modulation section that modulates coding information output from said coding apparatus to a radio frequency signal (see [0045], RF modulator 105); and

a transmitting antenna that converts a signal output from said RF modulation section to a radio wave, and transmits that radio wave (see [0045], transmitting antenna 106).

However, Ebara *et al.* does not specifically teach the coding apparatus as claimed in claim 1.

Jin *et al.* in view of Nomura does teach the coding apparatus as claim 1 (see [0015]-[0016]).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the acoustic signal transmitting apparatus taught by Ebara et al. with coding apparatus as taught by Jin et al. and Nomura. The motivation to have combined the references involves equipping the sound transmitter with a type of voice coding and decoding equipment quality improvement (see Ebara et al., [0044] and abstract).

As to claims 17-19, Ebara teaches an acoustic signal reception apparatus comprising:

a receiving antenna that receives a radio wave (see [0046], receiving antenna 107) ;

an RF demodulation section that demodulates a signal received by said receiving antenna (see [0046], RF demodulator 108);

a D/A conversion section that converts a signal output from said decoding apparatus to an analog signal (see [0046], D/A converted 110); and

an acoustic output section that converts an electrical signal output from said D/A conversion section to an acoustic signal (see [0046], audio output device 111).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the acoustic signal receiving apparatus taught by Ebara *et al.* with coding apparatus as taught by Jin *et al.* The motivation to have combined the references involves equipping the sound receiver with a type of voice coding and decoding equipment quality improvement (see Ebara *et al.*, [0044] and abstract).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Unno (US 2002/0107686) is cited to disclose a layered CELP encoder and decoder. Sperschneider *et al.* (US 2004/0049376) is cited to disclose the generation of scalable data stream using two encoders.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paras Shah whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-THURS. 7:30a.m.-4:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571)272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

P.S.

12/11/2007

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Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :03/04/2005, 06/21/2005, 01/10/2006.